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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,887	01/09/2002	Jenn-Kwei Tyan	2001P07430 US01	5647
7590	11/15/2004		EXAMINER	
Donald B. Paschburg Siemens Corporation Intellectual Property Department 186 Wood Avenue South Iselin, NJ 08830			BALI, VIKKRAM	
			ART UNIT	PAPER NUMBER
			2623	

DATE MAILED: 11/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/042,887

Applicant(s)

TYAN ET AL.

Examiner

Vikkram Bali

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 21-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-20 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-20, drawn to object inspection, classified in class 382, subclass 141.
  - II. Claims 21-26, drawn to pattern recognition using the edge measurements, classified in class 382, subclass 199.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as inspecting any object. See MPEP § 806.05(d).

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Donald Paschburg, 33,753 on 11/2/2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-20. Affirmation of this election must be made by applicant in replying to this

Office action. Claims 21-26 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al (US 6539531).

With respect to claim 1, Miller discloses a modeling of an object and matching of an object (see col. 10, lines 53-560, the design is simulated into a model and verified) as claimed. However, he fails to explicitly disclose the offline as claimed. But, as seen from the figure 6 52 and 62 numerical can simply be offline or online, therefore, one ordinary skilled in the art at the time of invention can obviously consider the modeling of the object to be performed either on line or offline, because the process of online or offline is known in the art and well used per the design choice.

With respect to claim 2, he further discloses surface mount component (see col. 10 lines 53-55 the component for the IC's) as claimed.

With respect to claim 3, he further discloses receiving the reference data and providing the model for the object type, (see figure 6 numerical 50 and 52) as claimed.

With respect to claim 4, he further discloses reference data being computer aided design (see col. 10 lines 60-61) as claimed.

4. Claims 6-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al (US 6539531) in view of Dishon et al (US 6166801).

With respect to claim 6 Miller discloses the invention substantially as disclose and as described above in claim 1. However, Miller fails to disclose receiving the image having the object, performing the coarse and refine search, as claimed. Dishon teaches receiving the image having the object, performing the coarse and refine search, (see col. 16, lines 60-61 and col. 17, lines 4-15) as claimed. It would have been obvious to one ordinary skilled in the art at the time of invention to combine the two references, as they are analogous because they are solving similar problem of optical inspection and defect detection. The coarse and refine search as taught by Dishon can be incorporated in to the Millers system in order to increase the throughput and to get better yield.

With respect to claim 7, Dishon further teaches the object is located on a simple image background, (see col. 16, lines 60-61 the substrate is scan, and whenever some is thing or some object is scanned the image is observed and thus that image has a background and the foreground "object") as claimed.

With respect to claim 8, Dishon further teaches localizing the object and measuring the localized object, (see col. 17 lines 5-15) as claimed.

With respect to claims 9, 10 and 12 the processes as claimed is the process use in the pattern matching and they are well known in the art as can be seen in the reference 5459636 for the pose estimating and the recognition of the model object and reference 5070465 for the segmentation and the iteratively measuring the object for the recognition. Therefore, it would have been obvious to one ordinary skilled in the art at

the time of invention to simply use the well known features of the pattern recognition in order to perform the refine search.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al (US 6539531) in view of Petrov et al (US 2002/0050988).

With respect to claim 5 Miller discloses the invention substantially as disclose and as described above in claim 3. However, Miller fails to disclose the model being polygonal shape, as claimed. Petrov teaches a modeling of a subject being 3D model as polygonal shape (see paragraph 251) as claimed. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to simply use the fact that the model being polygonal shape as taught by Petrov, thereby giving a full coordinate system for the object (see paragraph 251).

Claims 13-20 are rejected for the same reasons as set forth in the rejection of claims 1-10 and 12, because claims 13-20 are the corresponding apparatus claims for the method claims 1-10 and 12.

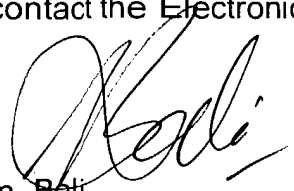
### ***Allowable Subject Matter***

6. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 703.305.4510. The examiner can normally be reached on 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703.308.6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Vikkram Bali  
Primary Examiner  
Art Unit 2623

vb  
November 9, 2004